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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/034,596

12/28/2001

Peter Van Buskirk

441

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25559

7590

10/24/2003

ATMI, INC.
7 COMMERCE DRIVE
DANBURY, CT 06810

EXAMINER

OWENS, DOUGLAS W

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,596

Applicant(s)

BUSKIRK, PETER VAN

Examiner

Douglas W Owens

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 11-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of the invention of group II, claims 1 – 10 in Paper No. 8 is acknowledged. The traversal is on the ground(s) that a search and examination of both inventions would not be a serious burden on the Examiner because both inventions include common elements, such as an insulating layer, a conductive line and an enhancement layer. This is not found persuasive because the assertion that a search and examination of both inventions would not be a serious burden on the Examiner is merely speculative and lacking evidence. Additionally, if it can be shown that a product as claimed can be made by another and material different process, restriction between inventions is proper (See MPEP 806.05(f)). It was shown in paper 7, mailed on July 3, 2003, that the product as claimed can be made by another and materially different process and further, they have separate status in the art.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 11 – 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 8.

Specification

3. The disclosure is objected to because of the following informalities:

in line 2 of page 3, "suite" should be replaced with "suited";

in line 19 of page 9, "art5" should be replaced with "art";

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in line 22 of page 9, "geomet5ric" should be replaced with "geometric"; and
in line 9 and 10 of page 12, "SiO2" and "Si3N4" should be replaced with "SiO₂"
and "Si₃N₄" respectively.

Appropriate correction is required.

Claim Objections

4. Claim 8 is objected to because of the following informalities:

in line 15, "each" should be replaced with "said"; and

in line 18, "each of" should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1 – 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. The terms "substantial magnetic permeability" and "substantial dielectric permeability" in claims 1, 4, 8 and 10 are relative terms which render the claims indefinite. The term "substantial" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

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8. Claim 2 recites the limitation "...said first insulating layer..." in line 3. There is insufficient antecedent basis for this limitation in the claim. It is not clear which insulating layer the claim is drawing reference to.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1 – 3, 5, 6 and 8 – 10 are rejected under 35 U.S.C. 102(e) as being anticipated by US patent No. 6,329,234 to Ma et al.

Regarding claims 1, 8, 9 and 10, Ma et al. teaches a method of making a passive transmission line device (Fig. 11), comprising:

forming a recess insulating layer (30) having a top and bottom surface;

forming a recess in the recess insulating layer by a damascene process (Col. 8, lines 18 - 27);

forming an enhancement layer (60; Col. 7, line 24) covering the walls and bottom surface of the recess;

said enhancement layer having substantial dielectric permeability; and

forming a conductive line (90) over the enhancement layer, etching over the top surface of the conductive line so that conductive material does not extend laterally

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beyond the recess (Col. 8, lines 23 - 31), wherein the etch is done by CMP.

Regarding claim 2, Ma et al. teaches a method, wherein the upper surface of the conductive line is coplanar with the upper surface of a first insulating layer.

Regarding claim 3, Ma et al. teaches a method, wherein the upper surface of the conductive line is coplanar with an upper surface of the enhancement layer.

Regarding claim 5, Ma et al. teaches a method, wherein the recess insulating layer is formed on a first insulating layer (20) having a top and bottom surface.

Regarding claim 6, Ma et al. teaches a method, wherein the first insulating layer includes at least one via extending there through and a conductive plug (16) fills the via (see left side of device in Fig. 11).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al.

Ma et al. does not teach a method, wherein a second enhancement layer is formed over the conductive line. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a second enhancement layer, such as silicon nitride, for the purpose of providing a passivation layer, since it is desirable to protect the structure.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W Owens whose telephone number is 703-308-6167. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C Lee can be reached on 703-308-1690. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

DWO

A handwritten signature in black ink, appearing to read 'Eddie Lee', with a large, sweeping initial 'E'.

**EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800**